



American Finance Association

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Source: *The Journal of Finance*, Vol. 46, No. 1 (Mar., 1991), pp. 401-407

Published by: Blackwell Publishing for the American Finance Association

Stable URL: <http://www.jstor.org/stable/2328701>

Accessed: 25/11/2009 12:05

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Taxes and the Capital Structure of Partnerships, REIT's, and Related Entities

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ABSTRACT

Academic finance has explored the effect of taxes on corporate capital structure in great detail. By contrast, the effect of taxes on the capital structure of partnerships, REIT's, and related entities has received little attention. The present paper shows that, under general conditions, the values of partnerships and REIT's are invariant to leverage, contradicting the sparse literature in the area. A proof similar to that of Modigliani-Miller is employed. The effect of real world imperfections is also examined.

THE THEORETICAL RELATIONSHIP BETWEEN corporate taxes and corporate capital structure has been thoroughly investigated (e.g., Miller (1977) and Modigliani and Miller (MM) (1958, 1963)). In contrast, the relationship between taxes and the capital structure of partnerships, Real Estate Investment Trusts (REIT's), and related entities has been largely ignored in the literature. Perhaps the current thinking on the subject is best summarized in an article entitled "Capital Structure Theory and REIT Offerings" by Howe and Shilling (1988). They state (p. 983) that, "Theory suggests that the net tax gain to corporate borrowing is unambiguously negative for a REIT." They expand this viewpoint with "... non-taxpaying firms must compete in the debt markets with firms for which interest expense results in tax savings. These firms can afford to pay a higher interest on debt, and thus there is a strong tax disadvantage to the use of debt for non-taxpaying firms."

The present paper disputes the above reasoning. It is argued that under a quite general model the value of a partnership, REIT, or related entity is invariant to leverage. This result is a strong one, since it holds regardless of the competition mentioned in Howe and Shilling (1988) between taxpaying and nontaxpaying firms. A model mirroring the essential features of partnerships, REIT's, and related entities is presented in Section I. Our basic invariance result is developed in this section. Specific complications in the current tax code are considered in Section II. Conclusions are also presented in this section.

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I. The Model and Basic Invariance Result

In this section, a perpetual growth model is presented to capture the essential features of partnerships, REIT's, and related entities. Consider a world of perfect certainty where cash flows for a partner holding the fraction k of a partnership are presented as in Table I.¹ The partnership begins at date 0 (not shown in table) when D of debt and S_L of equity is issued. Partnership earnings before interest at date t are $X(1 + \Pi)^{t-1}$, where Π is the inflation rate, and nominal earnings grow into perpetuity. Partnership interest at date 1 is $r_D D$, where r_D is the interest rate.

The value of the partnership grows with inflation in this model. To keep a constant debt-equity ratio, the partnership issues new debt of $D\Pi(1 + \Pi)^{t-1}$ at date t . This additional funding from debt is distributed to the partners.

In accordance with U.S. tax law, partners are taxed on profits rather than distributions. In this model, personal taxes for our partner at date t are $k[(X - r_D D) \cdot t_p + t_{cg} \Pi(S_L + D)](1 + \Pi)^{t-1}$, assuming a marginal tax bracket of t_p and a capital gains tax rate of t_{cg} .² Capital gains are taxed here on an accrual basis, while the real world case of tax deferral until sale is considered later in this section.³

The distribution to partners is shown in line (8) of Table I and represents earnings after personal taxes plus additional debt issued. For any date t , the after-personal-tax distribution to partners is:

$$k[(X - r_D D)(1 - t_p) + D\Pi - t_{cg} \Pi(S_L + D)] \cdot (1 + \Pi)^{t-1}. \quad (1)$$

An investor holding a fraction k of an otherwise-identical unlevered partnership receives an after-personal-tax distribution at date t of:

$$k[X(1 - t_p) - t_{cg} \Pi S_U] \cdot (1 + \Pi)^{t-1},$$

where S_U is the value of the unlevered equity at date 0. Now assume that this investor partially finances his purchase into the partnership by borrowing kD of debt on personal account at date 0 and by later borrowing $k \cdot D\Pi(1 + \Pi)^{t-1}$ of additional debt at each date t . Assuming the interest rate on personal borrowing is also r_D , he makes after-tax financing payments

¹ We refer to our simplified entity as a partnership to avoid cumbersomeness. Differences between partnerships and REIT's are discussed in Section II.

² In this section, we allow unlimited deductions both for partnership losses and for interest on personal debt. Limitations in the current tax code are presented in Section II.

³ The capital gains tax follows from basis rules for a levered partnership. Unlike corporations, the basis of a partner's interest in the partnership is the sum of his equity contribution plus his proportion of the debt. The basis of his/her interest in the partnership at date 0 is $k \cdot (S_L + D)$. This basis does not change at date 1 since the debt increase of $k\Pi D$ is offset by the payment of this amount as a distribution. If the partner's share is sold at date 1, the partner in our steady-state example receives $k \cdot S_L(1 + \Pi)$ in cash, and the buyer assumes the seller's debt obligation of $k \cdot D(1 + \Pi)$. The capital gains tax at date 1 is $k \cdot t_{cg}[S_L(1 + \Pi) + D(1 + \Pi) - (S_L + D)] = k \cdot t_{cg} \cdot \Pi(S_L + D)$. Therefore, $k \cdot t_{cg} \cdot \Pi(S_L + D)$ would also be the capital gains tax under our assumption of an accrual tax system.

Table I
Cash Flows, Values, and Capital Gains for a Partner Holding the Fraction k of a Levered Partnership or REIT in a Perpetual Growth Model

This table shows how the distribution to partners after personal taxes is calculated. This distribution is equal to earnings before interest (row (3)) minus interest (row (4)) plus new debt (row (5)) minus taxes paid by partner (row (7)). S_L is the value of the levered partnership at date 0. S_U is the value of the unlevered partnership at date 0. Π is the inflation rate per period. The partner's tax rate on ordinary income is t_p and t_{cg} is the partner's tax rate on capital gains. Partners are taxed on profits rather than distributions. Capital gains are taxed on an accrual basis. X is the partnership's earnings before interest at date 1. D is the value of the debt at date 0. The interest rate on debt is r_D .

Date	1	2	3 ...
(1) Value of equity	$k[S_L](1 + \Pi)$	$k[S_L](1 + \Pi)^2$	$k[S_L](1 + \Pi)^3$
(2) Capital Gain on Equity	$k[\Pi S_L]$	$k[\Pi S_L](1 + \Pi)$	$k[\Pi S_L](1 + \Pi)^2$
(3) Earnings before interest	$k[X]$	$k[X](1 + \Pi)$	$k[X](1 + \Pi)^2$
(4) Interest	$k[-r_D D]$	$k[-r_D D](1 + \Pi)$	$k[-r_D D](1 + \Pi)^2$
(5) New debt	$k[D\Pi]$	$k[D\Pi](1 + \Pi)$	$k[D\Pi](1 + \Pi)^2$
(6) Distribution to partner	$k[X - r_D D + D\Pi]$	$k[(X - r_D D + D\Pi)(1 + \Pi)]$	$k[(X - r_D D + D\Pi)(1 + \Pi)^2]$
(7) Taxes paid by partner	$k[(X - r_D D) \cdot t_p - t_{cg} \Pi S_L]$	$k[(X - r_D D) \cdot t_p - t_{cg} \Pi S_L](1 + \Pi)$	$k[(X - r_D D) \cdot t_p - t_{cg} \Pi S_L](1 + \Pi)^2$
(8) Distribution to partners after personal taxes	$k[(X - r_D D)(1 - t_p) + D\Pi - t_{cg} \Pi S_L]$	$k[(X - r_D D)(1 - t_p) + D\Pi - t_{cg} \Pi S_L](1 + \Pi)$	$k[(X - r_D D)(1 - t_p) + D\Pi - t_{cg} \Pi S_L](1 + \Pi)^2$

at date t of:⁴

$$-k[r_D D(1 - t_P) - D\Pi] \cdot (1 + \Pi)^{t-1},$$

implying an after-tax distribution of:

$$k[(X - r_D D)(1 - t_P) + D\Pi - t_{cg}\Pi S_U] \cdot (1 + \Pi)^{t-1}. \quad (2)$$

The difference between formulae (1) and (2) is $-k \cdot t_{cg}\Pi(1 + \Pi)(S_L + D - S_U)$.

To establish the relationship between the value of an unlevered partnership and the value of a levered partnership, assume initially that $S_L > S_U - D$. This assumption, which implies that a partner's investment in levered equity is greater than the partner's investment in a portfolio of unlevered equity and personal borrowing, leads to a contradiction. That is, our comparison of formulae (1) and (2) above indicates that, if S_L is greater than $S_U - D$, the after-tax distribution from levered equity is less than the after-tax distribution from a portfolio of unlevered equity and personal borrowing. Since the initial investment is greater for levered equity, no one would hold levered equity here. A similar argument can also be used to show that $S_U > S_L + D$.

Now assume that $S_U = S_L + D$, implying that the partner's initial investment in the unlevered partnership, financed by personal borrowing, is equal to his initial investment in the otherwise-identical levered partnership. Also, the return provided in formula (1) now equals the return provided in (2). There is no contradiction here since the two investments must sell at the same price if the returns on the two investments are equal. Thus, it must be the case that the value of a partnership is unaffected by leverage, even in the presence of a capital gains tax.

The above argument is analogous to the MM proof in the no tax case. Since investors in the MM world can borrow and lend at the same rate at which the corporation can borrow and lend, corporate borrowing can neither help nor hurt the shareholder. In other words, a shareholder can undo the corporate leverage decision by lending if corporate leverage is too high and borrowing if corporate leverage is too low.

The key to the present paper's partnership example is that an individual gets the same tax deduction whether he borrows or the partnership borrows. If both the individual and the partnership have the same borrowing rate as well, partnership leverage is of no consequence. A partner can undo the partnership's leverage decision by lending if the partnership's leverage is too high and borrowing if the partnership's leverage is too low.

Note that our result, like that of MM, holds regardless of the interest rate and the return on equity. Thus, the statement in the received literature that taxpaying entities "crowd" nontaxpaying entities like partnerships and REIT's out of the debt markets is simply not true.

⁴ Supra note 2.

The above example assumes that capital gains are taxed on an accrual basis. The same result holds if capital gains are taxed only upon sale. Assuming an individual purchases shares in the unlevered partnership at date 0 and sells at date t , the capital gains tax at date t is:

$$k \cdot t_{cg} \cdot [S_U(1 + \Pi)^t - S_U] = k \cdot t_{cg} \cdot [S_U((1 + \Pi)^t - 1)]. \quad (3)$$

An individual purchasing shares in an otherwise-identical levered partnership at date 0 and selling them at date t pays a capital gains tax at date t of:

$$k \cdot t_{cg} \cdot [S_L((1 + \Pi)^t - 1) + D((1 + \Pi)^t - 1)]. \quad (4)$$

The debt term $D(1 + \Pi)^t - 1$ enters equation (4) because the buyer would take over the partner's debt obligation which has now grown to $k \cdot D(1 + \Pi)^t$.

The capital gains taxes of equation (3) and formula (4) are equal only when $S_U = S_L + D$. Thus, the reasoning employed above for the accrual-based capital gains tax can be used to establish that $S_U = S_L + D$ when capital gains are taxed only upon sale.

II. Relationship to Real World and Concluding Remarks

The model shown above was meant to capture the essential aspects of the real world. However, there is at least one important feature of the U.S. tax code that is not reflected in the model. Current tax law does not allow unlimited losses for either REIT's or partnerships and does not allow unlimited interest deductions for individuals.

Let us consider partnerships first. The IRS defines passive activity as "one that involves the conduct of a trade or business in which the taxpayer does not materially participate."⁵ The present paper is concerned with partnerships of this type. For a passive partner, the interest paid by a partnership is treated analogously to the interest on personal debt used to buy into the partnership.⁶ That is, the investor's share of partnership losses (where expenses include both partnership interest and the above interest on personal debt) may be deducted against income from other passive activities. However, partnership losses cannot be deducted against portfolio income (income from stocks, bonds, etc.). Since both partnership interest and the personal interest used to finance the partnership investment are handled similarly, this paper's conclusion that the value of a partnership is invariant to its capital structure still holds.

This point can be presented more formally. Consider an investor holding the fraction k of a partnership where $X > 0$ and $X < r_D D$. Assuming the individual does not sell his partnership interest, i.e., no capital gains tax is due, his/her after-personal tax distribution at date 1 is:

$$k(X - r_D D + D\Pi) + t_P \cdot \min(k(r_D D - X), P). \quad (5)$$

⁵ Commerce Clearing House (1986, p. 365).

⁶ Commerce Clearing House (1986, p. 364).

Here, the debt of D could have been issued by either the partnership or by the individual partners. In either case, the loss on the partnership (including both partnership interest and personal interest) is limited by P , the investor's passive income from all other activities. (For simplicity, P is assumed to be a positive number.)

However, there is at least one situation where personal financing is preferred. Imagine a partnership that, if levered, would report a loss in a particular year. Further assume that partners could alternatively contribute to an otherwise-identical all-equity partnership by increasing their home mortgages. Since interest on home mortgages is deductible, this type of financing provides a deduction that partnership leverage does not provide. Of course, the benefit from this strategy depends on: (1) the extent of the partners' passive income from other activities and (2) whether or not the partners have already "maxed out" on their home equity.

Formally, an investor in a levered partnership who borrows $k \cdot D$ on a home mortgage to finance his partnership interest has a distribution after both personal tax and financing costs at date 1 of:

$$k(X - r_D D + D\Pi + t_P(r_D D - X)). \quad (6)$$

... (6) is greater than formula (5) whenever $P < r_D D - X$.

A REIT is fundamentally similar to a partnership in that the entity's profits are taxed at the personal level only. However, a stockholder cannot deduct the losses from a REIT even if he has offsetting income elsewhere in his personal holdings. Conversely, a stockholder financing an investment in an otherwise-identical all-equity REIT through personal borrowing can use the interest deductions to offset portfolio income (income on stocks, bonds, etc.). Thus, personal borrowing has a distinct advantage here. Furthermore, the advantage to home mortgage financing, described above, applies here as well.

Finally, an investor in a REIT must declare as income any return of capital if the return of capital lowers the investor's basis in the REIT below zero. Consider a REIT financed with high debt and only a thin margin of equity. Should the REIT's properties appreciate, the REIT might refinance, paying out the proceeds as a dividend. If the dividend is greater than the investor's basis, the investor must recognize the difference as income. Alternatively, imagine that investors borrow on personal account to finance their initial contributions to an otherwise-identical all-equity REIT. Any later refinancing dividend would likely be less than the investor's basis in an all-equity REIT, implying that the dividend would be treated as an untaxed return on capital.

This section is meant to illustrate some of the complications in the current tax code and is not intended to be all-inclusive. In a number of scenarios, the value of a partnership or REIT is negatively related to its leverage. Nevertheless, the conclusion of Section I that the value of a partnership or REIT is invariant to leverage is still important, since academic finance has always been (rightly) concerned with idealized models of organizational forms. Fur-

thermore, the arguments in these earlier sections disprove the contention in the literature that, through competition with the corporate sector, taxpaying firms create a strong tax disadvantage to the use of debt in partnerships and REIT's.

Finally, the tax code is only one factor explaining leverage. Despite the analysis of this paper, partnerships appear to be more highly levered than corporations. Perhaps this occurs because small firms find the issuance costs of debt to be below the issuance costs of equity. Alternatively, partnerships may be more common in industries such as real estate where assets have high "debt-capacity."

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